17. (New) The method according to claim 16, characterized in that the one or more amino acids are at amino acid position 531 and/or 597 of the lipoxygenase from *Cucumis sativus* or a corresponding position in a lipoxygenase from another plant.

18. (New) The method according to claim 17, characterized in that the amino acid at position 531 is substituted with a Phe- or His- residue and/or the amino acid at position 597 is substituted with a Val- or Phe- residue.

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19. (New) The method according to claim 18, characterized in that the amino acid at position 531 is a Val- and is substituted with a Phe- and/or the amino acid at position 597 is a His- and is substituted with a Val-.

20. (New) The method according to claim 15, characterized in that the substituting is by directed mutagenesis.

21. (New) A lipoxygenase obtained in accordance with the method of claim 15.

22. (New) A lipoxygenase obtained in accordance with the method of claim 16.

23. (New) A lipoxygenase obtained in accordance with the method of claim 17.

24. (New) A lipoxygenase obtained in accordance with the method of claim 18.

25. (New) A lipoxygenase obtained in accordance with the method of claim 19.

26. (New) An isolated nucleic acid molecule which consists essentially of a nucleotide sequence encoding the lipoxygenase of claim 21, optionally in the form of a vector.

27. (New) An isolated nucleic acid molecule which consists essentially of a nucleotide sequence encoding the lipoxygenase of claim 22, optionally in the form of a vector.

28. (New) An isolated nucleic acid molecule which consists essentially of a nucleotide sequence encoding the lipoxygenase of claim 23, optionally in the form of a vector.

29. (New) An isolated nucleic acid molecule which consists essentially of a nucleotide sequence encoding the lipoxygenase of claim 24, optionally in the form of a vector.

30. (New) An isolated nucleic acid molecule which consists essentially of a nucleotide sequence encoding the lipoxygenase of claim 25, optionally in the form of a vector.

31. (New) A cell comprising the isolated nucleic acid molecule of claim 26.

32. (New) A cell comprising the isolated nucleic acid molecule of claim 27.

33. (New) A cell comprising the isolated nucleic acid molecule of claim 28.

34. (New) A cell comprising the isolated nucleic acid molecule of claim 29.

35. (New) A cell comprising the isolated nucleic acid molecule of claim 30.

36. (New) A plant or a plant part comprising the cell of claim 31.

37. (New) A plant or a plant part comprising the cell of claim 32.

38. (New) A plant or a plant part comprising the cell of claim 33.

39. (New) A plant or a plant part comprising the cell of claim 34.

40. (New) A plant or a plant part comprising the cell of claim 35.

41. (New) A method of making 6-, 9- and/or 6,9-hydroperoxy-γ-linolenic acid, which method comprises incubating γ-linolenic acid with the lipoxygenase of claim 21 under suitable conditions, whereupon 6-, 9- and/or 6,9-hydroperoxy-γ-linolenic acid is obtained.

42. (New) A method of making 6-, 9- and/or 6,9-hydroperoxy-γ-linolenic acid, which method comprises incubating γ-linolenic acid with the lipoxygenase of claim 22 under suitable conditions, whereupon 6-, 9- and/or 6,9-hydroperoxy-γ-linolenic acid is obtained.

43. (New) A method of making 6-, 9- and/or 6,9-hydroperoxy-γ-linolenic acid, which method comprises incubating γ-linolenic acid with the lipoxygenase of claim 23 under suitable conditions, whereupon 6-, 9- and/or 6,9-hydroperoxy-γ-linolenic acid is obtained.